TABLE 3. EDUCATIONAL BENEFIT OPTIONS

Option	Program Design Features	Maximum Accumulated Benefit Paid by DoD a/	Anticipated Monthly Stipend for Full-Time School Attendance
I. Contributory VEAP	DoD contributes $2 for each $1 a servicemember contributes. Maximum accumulation pays out $225 monthly for 36 months' schooling.	$ 5,400 b/	$ 150 c/
With kickers (current policy)	Adds $12,000 DoD contribution for Army high school graduate test category I-IIIA enlistments for 36 months' contributions.	17,400 b/	510 c/
II. Non contributory Plan	Each month's service provides one month's benefit at $225. Maximum 36 months.	8,100	225
With supplemental	Supplemental equivalent to kicker in Option I	20,100	560
III. Two-tier Noncontributory Plan	Same as Option II, except completion of six years' service doubles value of 36 months' basic benefit.	16,200	225/450
With supplemental	Same as Option II.	28,200	560/785
IV. Two-tier Noncontributory Plan With Benefit Transfer	Same as Option III, except ten years' service allows expenditure of earned benefit by spouse and college-age children. Must remain on active duty (or retire) during transfer.	16,200	225/450
With supplemental	Same as Option II.	28,200	560/785

a/ By comparison, the Vietnam-era GI Bill now provides a maximum earned benefit of about $18,300 (for the typical veteran with one dependent).

b/ Figures shown exclude $2,700 that must be contributed by plan participant to accumulate maximum benefit.

c/ Assumes member contributes $50 monthly for 20 months, and receives two-for-one matching funds from DoD, plus supplemental benefits if applicable. This represents the typical amount and length of participation by VEAP participants to date.

Option III. Provide a Two-Tier Noncontributory Benefit With Supplemental Payments for Qualified High School Graduates

This approach would respond to the concern that Options I and II provide an incentive to leave service once the benefits have been earned. Doubling the earned benefit to $450 monthly upon completion of six years' service might encourage some to reenlist. On the other hand, a larger benefit after six years might tend to induce subsequent separations.

Option IV. Provide a Two-Tier Noncontributory Benefit With Supplemental Payments and the Right to Transfer the Earned Benefit to Dependents

The benefit transfer feature of this option is favored by the military services and has been incorporated in most of the legislative proposals. Proponents argue that allowing a spouse or college-age children to use the earned benefits, provided the servicemember remains on active duty (or retires), would improve career retention and counter the incentive to separate once the benefits have been earned. The specific provision illustrated in this option permits benefit transfer after the tenth year of service, and requires him to remain on active duty (or retire) while the spouse and/or children expend the benefit. 7/

7/ The eligibility requirements for transferability in this option mirror those contained in H.R. 1400 (see Appendix A for additional details).

CHAPTER IV. EFFECTS OF THE EDUCATIONAL BENEFIT OPTIONS ON RECRUITING, RETENTION, AND COSTS

The options described in the previous chapter form the framework for a cost-effectiveness evaluation of alternative military educational benefit proposals. The analysis shows that an unrestricted noncontributory educational benefit like that of the Vietnam-era GI Bill would represent a very expensive way to improve quality recruiting. One approach which would hold down costs would be to target the benefit on difficult-to-recruit volunteers for service in much-needed skills. Moreover, an unrestricted noncontributory benefit might even be counterproductive if it led to more additional separations than additional enlistments induced by the benefits. This latter observation underscores the need to devise a program with incentives that limit the adverse consequences on career retention.

This chapter begins with a brief discussion of the methodology employed to analyze the four options. 1/ It then evaluates the benefits under each option and appraises the option's effects on Army recruiting and retention. Only Army enlisted recruiting and retention estimates are given in this report, although cost estimates are presented for all four services (enlisted and officer), with the Army displayed separately. This was done in order to concentrate on the options' effects on Army manpower, since the Army confronts the most difficult recruiting challenge.

METHOD USED TO MAKE ESTIMATES

This section provides a brief overview of the methods used in this report to estimate effects on recruiting, retention, and costs. The basic approach to assessing recruiting and retention effects was to "monetize" the benefits. That is, future educational benefits were converted to the equivalent of a one-time cash payment made now rather than in the future. The conversion not only reduced the maximum face value of future

1/ A forthcoming report will describe the methodologies and data sources used in this study.

educational benefits to reflect the normal preference for cash now rather than cash later, but also reduced it to reflect the recruits' uncertainty about the extent to which they will use the benefits. Once converted into its equivalent discounted cash value, the recruiting and retention effects of an educational benefit were estimated based on studies of the effects of pay on the supply of volunteers. The next sections discuss the method in more detail.

Recruiting

A growing body of research suggests that a generous educational benefit program can increase enlistments of high school graduates with above-average aptitude test scores. This report employs a discounted valuation method to convert the maximum dollar value of the benefit into its perceived cash-value equivalent at the time of enlistment or reenlistment. The valuation method incorporates not only a discount rate to reflect a preference for money now rather than later, but also a set of active-duty separation probabilities to predict the likely timing and use of benefits. 2/

Table 4 presents two estimates of the benefits' discounted values to a recruit at the point of enlistment. The low estimate assumes that the individual expects to expend only part of the earned benefits, at a rate and over a time period based upon historical experience for those eligible for the Vietnam-era GI Bill program; this experience reflects part-time attendance or attendance at a two-year school by many veterans. The higher discounted value assumes that all recruits anticipate using all their earned benefits within four years from separation. 3/

2/ One would not expect, for example, that a potential recruit would find equally attractive $5,000 cash at the time of enlistment and a deferred educational benefit paying $250 monthly for 20 months ($5,000 maximum). He would likely assign less value to the educational benefit.

3/ The discounted values used to calculate recruiting increases are not reduced to reflect any effects of nonmilitary student aid. This may mean that CBO's military recruiting increases are overstated to the extent that such nonmilitary benefits offset this enlistment effect. A review of past statistics

TABLE 4. DISCOUNTED VALUATIONS OF FOUR EDUCATIONAL BENEFIT OPTIONS (In dollars)

Options		Maximum Accumulated Benefit Paid by DoD	Discounted Value At Point of Enlistment		Discounted Separation Incentive Value At Various Reenlistment Zones a/		
			Low	High	Zone A	Zone B	Zone C
			Without Supplemental Payment				
I.	Contributory VEAP (current policy)	5,400	90	770	-180	-200	-170
II.	Noncontributory Plan	8,100	530	2,030	-1,170	-1,110	-950
III.	Two-tier Noncontributory Plan	16,200	620	2,440	-780	-2,190	-1,900
IV.	Two-tier Noncontributory Plan With Benefit Transfer	16,200	680	2,810	-70	-450	880
			With Supplemental Payment				
I.	Contributory VEAP (current policy)	17,400	940	3,620	-1,600	-1,500	-1,300
II.	Noncontributory Plan	20,100	1,310	5,030	-2,920	-2,720	-2,360
III.	Two-tier Noncontributory Plan	28,200	1,400	5,440	-2,520	-3,820	-3,310
IV.	Two-tier Noncontributory Plan With Benefit Transfer	28,200	1,530	6,100	-1,120	-360	2,100

NOTE: Army retention data are used to estimate the discounted valuations; results for the other services will differ somewhat depending on their specific retention patterns.

a/ Zones are year-of-service groupings in which reenlistments occur. Zone A includes reenlistments by servicemembers with 3 to 6 years of service; Zone B, those with 7 through 10 years of service; and Zone C, those with 11 through 14 years of service.

The discounted valuation at the time of enlistment is translated into a relative increase in compensation. From this an estimated enlistment response can be calculated based on existing studies of enlistment supply. 4/

Retention

A similar method is used to analyze the effects on retention. The incentive to separate (equivalent to a negative reenlistment bonus) is calculated for various career reenlistment zones. This assumes that a servicemember evaluating the prospects of reenlistment takes into account not only the discounted valuation of the educational benefit should he decide to separate, but also the discounted valuation should he reenlist instead. (All these calculations assume that the individual expects to expend a fraction of earned benefits equivalent to the historical pattern under the Vietnam-era GI Bill.) 5/ The difference between the two

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suggests, however, that the rapid growth of domestic student aid in the 1970s did not necessarily cut down on military recruiting (see Appendix B). This conclusion lends support for the exclusion of such effects from these estimates. Moreover, ignoring the benefits entirely should ensure that CBO does not understate recruiting in the future, given the cutbacks in nonmilitary educational benefits that are being proposed.

4/ For example, assume the discounted expected value of the benefit at time of enlistment amounted to $5,000 and regular military compensation when discounted at the same rate over the same expected service life amounted to $35,000. The percentage increase in high-quality, supply-constrained enlistments would be calculated as follows: ($5,000/35,000) x 100 x E, where E represents the factor relating the percentage increase in compensation to the percentage increase in enlistments. Thus, if E equals 1.5, a 21.4 percent increase in quality enlistments results in the above example. A more formal mathematical explanation of this approach will be available in a forthcoming technical report.

5/ The reader should note that, like the discounted enlistment values shown in Table 4, both low and high discounted separation incentive values could have been provided. It was decided, however, to display and use only the lower discounted

represents the net incentive to separate. These incentives to separate are used to revise the reenlistment rates; the methods are based on studies of the effects of reenlistment bonuses.

Costs

A statistical model is employed to estimate benefit utilization and subsequent costs. The model uses historical relationships between a set of economic and policy variables and Vietnam-era GI Bill utilization. Both the likelihood and amount of benefit expenditure by an eligible veteran in any given year have been found to depend on the characteristics of the veteran (such as predischarge education, aptitude, race, marital status, and number of years since discharge), the real level of the monthly benefit (that is, after adjusting for inflation), the level of unemployment in the economy, and the availability of training opportunities (represented by the percentage of students enrolled in schools offering two-year degrees).

An inventory flow model is used to calculate the annual number of eligible separations under each of the options. This model applies a set of retention rates (adjusted for the options' effects on retention) to the current enlisted strength and computes the resulting separations as well as the enlistments required to sustain that strength over time. These separations are combined with output from the statistical regression analyses on veteran benefit utilization to estimate the resulting educational benefit costs associated with this flow of separations.

To estimate the costs of allowing servicemembers to transfer their benefits to a spouse and/or dependents, military and civilian survey data are used to calculate the population of eligible spouses and college-age dependents of active-duty and retired military personnel with sufficient service to transfer

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separation incentive values on the premise that career servicemembers have a more realistic appraisal of their probable use of benefits and that this appraisal would mirror the historical Vietnam-era GI Bill pattern for veterans with several years' active service. Had the higher values been used, substantially more separations would have been projected. This would significantly lower the effectiveness estimated for the proposals.

their benefits. The costing methodology also incorporates a set of demographic-specific college attendance rates to estimate the potential number of eligible beneficiaries expected to utilize the servicemembers' benefit.

INDEXING THE BENEFIT TO KEEP PACE WITH INFLATION

The estimates of cost and manpower effects for the options assume that benefit levels would be indexed to keep pace with inflation. 6/ Whether or not a program contains an indexing provision affects both the long-run costs and the recruiting potential of any program. If the noncontributory options studied here were not indexed to inflation, their 1995 cost would be about half the estimates shown in Table 4. While not indexing benefits would save money, it would substantially erode their recruiting effectiveness over the long run. 7/

EVALUATING THE OPTIONS

Option I. Continue the Existing Contributory VEAP Program

Description. This option would continue the educational benefit program now in force. The basic contributory VEAP would remain available to all services. The Army, however, would continue to offer a $12,000 kicker to high school graduates of above-average aptitude enlisting in selected skills (see Table 3 in Chapter III).

Value of the Program to the Individual. The maximum amount that the government could contribute to an individual under Option I would be $17,400 (see Table 4). This includes the

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6/ In Option I, the maximum contribution, the permissible range of contributions, and the kicker value would be indexed.

7/ Only one of the 13 educational bills introduced during the 97th Congress contain a provision indexing benefits. However, the Congress in the past has raised benefit levels for the Vietnam-era GI Bill in response to inflation. If past legislative practices can be used as a guide, benefit levels under any new program are likely to be increased in response to inflation whether or not they are indexed.

maximum supplemental payment or kicker of $12,000 and full use of all benefits.

The estimate of $17,400 may, however, greatly overstate the value of the program to someone considering entering the military. A more realistic estimate requires discounting the benefits to reflect the time-lag before they can be expended, and other limitations. Discounted values for Option I range from only $90, assuming no supplemental payment and the use of only part of the benefits, up to $3,620 if a person receives the maximum supplemental payment and uses all of the benefits (see Table 4). These discounted estimates are used to calculate the recruiting effects discussed below.

The value of Option I can also be calculated for servicemembers at various points in their military careers. The value of educational benefits to a careerist is the difference between the worth of the benefits if he leaves the military immediately and their worth if he remains in the military but retains the right to use the benefits eventually. Generally, this difference is negative, reflecting what the prospective careerist gives up should he decide to reenlist and forgo immediate use of the educational benefits. Thus the benefits create an incentive to separate. In the case of Option I, for example, this incentive amounts to about $1,600 for a person with between three and six years' service who earns a supplemental payment (see Table 4). 8/ This value diminishes gradually over time, reflecting the decreased likelihood of use. 9/

8/ To put these separation incentive values in perspective, consider that the average Army bonus paid upon a first reenlistment (Zone A) amounted to about $3,500 in fiscal year 1981. Just over half the Army's Zone A reenlistments received such a bonus. The analysis suggests that offering an additional $1,600 in cash for a reenlistment should be enough to neutralize the separation incentive effect of the earned educational benefit on those in Zone A.

9/ Moreover, the same separation incentive value has a diminishing effect with increasing time in service. Because of the military retirement system and progressively greater pay for additional service, a $1,600 separation value has a considerably smaller effect on reenlistment plans at the twelfth year of service than at the third year.

Effects on Recruiting and Retention. The CBO estimates suggest that Option I would result in a net increase of between 0 and 4 percent in the number of high-quality Army recruits (that is, recruits holding high school diplomas who score in the upper half of all recruits on the tests administered at the time of entrance to the service). The estimated increase is in comparision to what would occur if 1981 educational benefits were continued. (See Table 5 for results.) The estimate of zero change would mean that prospective recruits anticipate expending their earned benefits at a rate practically identical to experience under the Vietnam-era GI Bill. 10/ The higher estimate of 4 percent would mean that prospective recruits expect to use all their benefits.

The net increase in numbers of high-quality recruits under Option I is the difference between the actual increase and the increased recruiting requirement necessary to offset the higher number of servicemembers induced to separate to expend their earned educational benefits. After six to ten years, when everyone has had enough time to become eligible for benefits, these increased separations would drive up demand for new recruits by about 2 percent, resulting in the net improvement of between 0 and 4 percent.

Option I could provide the Army a modest hedge against the possibility of adverse developments in enlisted recruiting in the 1980s. As Chapter I discussed, such a modest hedge may be all that is needed. If present compensation and personnel policies continue, the Army appears likely to be able to meet its numerical goals for recruits and to achieve at least the minimum standards for recruit quality mandated by the Congress. This would not be the case, however, if a substantial increase in Army strength became necessary.

10/ Data on Vietnam-era GI Bill training veterans reveal a disproportionate number attending school part-time rather than full-time and attending two-year rather than four-year institutions. Vietnam-era veterans who chose to use their GI Bill benefits used an average of less than 20 full-time equivalent months out of the 45-month maximum earned benefit over the ten-year eligibility period. There is, however, a wide dispersion in probable use around this mean value. The lower discounted valuation at the point of enlistment, and the valuation later used in discussion of reenlistment, employ this Vietnam-era GI Bill expenditure pattern.

TABLE 5. ESTIMATED EFFECTS OF FOUR EDUCATIONAL BENEFIT OPTIONS ON ARMY RECRUITING AND RETENTION RELATIVE TO LEVELS UNDER 1981 PROGRAMS a/

Options	Percentage Increase in High-Quality Accessions		Less the Percentage Change in High-Quality Recruiting Requirements b/	Net Percentage Change in High-Quality Recruiting	
	Low	High		Low	High
I. Contributory VEAP	2	6	2	0	4
II. Noncontributory Plan	3	11	5	-2	6
III. Two-tier Non-contributory Plan	3	12	5	-2	7
IV. Two-tier Non-contributory Plan With Benefit Transfer	4	14	0	4	14

a/ Estimates take into account the effect of the Army VEAP kicker program (less generous than Option I) available in fiscal year 1981 and thus show the net percentage improvement in Army high-quality recruiting when the options are chosen as substitutes. CBO estimated that in the fiscal year 1981 test program the control cell (one-half the nation) for the Army, which received VEAP with kickers averaging $4,800, produced a 1.5 and 6.5 percent increase in high-quality recruits in the low and high estimates, respectively. The steady-state adjustment in recruiting requirements attributed to the vested benefit's separation incentive amounted to 1.7 percent. These figures were deducted to yield the values shown on this table.

b/ These figures represent increases in high-quality recruiting necessary to offset the additional high-quality separations attributed to the options (with supplemental). The estimates assume that enough time has passed so that all persons making reenlistment decisions are eligible for the educational benefits.

The basic VEAP (without kickers) available under Option I offers very little recruiting improvement. Thus, the other services can expect little recruiting benefit from Option I unless they also employ kickers. The option as presently structured would give the Army a recruiting advantage over the other services in educational benefits, but the program also maintains sufficient flexibility to allow the use of kickers by the other services should the need arise.

Effects on Costs. Total costs over the next few years would be very small under Option I, since there would be few veteran beneficiaries. Beyond the year 2000, however, it would result in annual expenditures of about $140 million in 1983 dollars (see Table 6). Most of this would be the cost of training veterans who had earned the supplemental benefits; about 25 percent would go to those who had earned only basic benefits. Since the option assumes that only the Army employs the kickers, about 80 percent of the cost of Option I can be attributed to former Army personnel. The cost for veterans using only basic benefits would be small because, as Chapter II noted, participation among those (including officers) receiving only the basic benefits would be low.

Option I would also be relatively low in cost per additional high-quality recruit induced to enlist because of the program. That cost would be about $45,000, or on average less than one-third the cost of the other options evaluated in this study (see Table 7). 11/ The costs are relatively low under Option I because most of the benefits are targeted on those high-quality recruits in short supply. As the next chapter points out, this option may also compare favorably with other recruiting incentives, primarily because of its highly targeted nature.

Pros and Cons for Option I. Continuing VEAP at present kicker levels, as Option I does, would be by far the least expensive of the educational benefit programs evaluated in this report and also the most cost-effective. Relative to fiscal year 1981 experience, it provides a modest increase in the percentage of Army high-quality recruits. It could thus provide the hedge the

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11/ The cost per added recruit is much higher than the amount paid to any one recruit. This is because benefits must be paid to all recruits, even though some would have enlisted in the Army anyway.

TABLE 6. ESTIMATED POST-SERVICE VETERAN COST OF FOUR EDUCATIONAL BENEFIT OPTIONS WHEN FULLY INDEXED TO INFLATION (In millions of fiscal year 1983 dollars) a/

Option	Beneficiaries	Fiscal Years 1985	1990	1995	Steady-State b/
I. Contributory VEAP	Enlisted				
	Army HSDG I-IIIA c/	d/	59	82	102
	Army Other	d/	4	6	8
	Other services	d/	13	20	28
	Officers				
	Army	0	0	0	0
	Other services	0	0	0	0
	Total	1	76	108	139
II. Noncontributory Plan	Enlisted				
	Army HSDG I-IIIA c/	1	150	227	237
	Army Other	d/	51	97	105
	Other services	1	179	292	313
	Officers				
	Army	d/	13	21	22
	Other services	d/	26	41	43
	Total	2	419	678	720
III. Two-tier Noncontributory Plan	Enlisted				
	Army HSDG I-IIIA c/	1	160	284	316
	Army Other	d/	64	148	171
	Other services	1	212	429	482
	Officers				
	Army	d/	18	40	45
	Other services	d/	33	70	80
	Total	2	487	970	1,093
IV. Two-tier Noncontributory Plan With Benefit Transfer	Enlisted				
	Army HSDG I-IIIA c/	1	219	342	354
	Army Other	d/	120	221	241
	Other services	1	341	590	634
	Officers				
	Army	d/	57	74	67
	Other services	d/	105	136	120
	Total	2	844	1,362	1,417
	(Share Due to Transfer)	(0)	(383)	(502)	(473)

a/ Cost estimates assume no in-service use. No costs occur prior to fiscal year 1985, assuming a fiscal year 1983 implementation date and a minimum requirement of two years' service.

b/ Steady-state refers to the point at which maximum annual costs occur (except for transferability). Option II reaches steady-state by 1996, Options III and IV by 1999, and Option I beyond the year 2000.

c/ Refers to Army high school diploma graduates in above-average test categories.

d/ Less than $0.5 million.

TABLE 7. ESTIMATED MANPOWER AND COST EFFECTS OF FOUR EDUCATIONAL BENEFIT OPTIONS (Costs in fiscal year 1983 dollars)

Option		Percent Improvement of High-Quality Volunteers a/	Steady-State Costs (in millions of dollars) b/ DoD Total	Steady-State Costs (in millions of dollars) b/ Army Enlisted Only	Cost per Additional Army High-Quality Enlistment Attributable to the Option c/
I.	Contributory VEAP	4	139	110	45,000
II.	Noncontributory Plan	6	720	342	160,000
III.	Two tier Noncontributory Plan	7	1,093	487	200,000
IV.	Two-tier Noncontributory Plan With Benefit Transfer	14	1,417	596	120,000

a/ Refers to percentage increases (the higher estimates shown in Table 5) in Army high school graduate test category I-IIIA enlistments when offered the kicker or supplemental benefit. Figures adjusted downward to reflect increased turnover in this high-quality group once vested in the option's benefit.

b/ Total costs based on participation by all four services (including officers) but only Army high-quality recruits receiving the kicker or supplemental.

c/ Includes only steady-state Army enlisted costs for each option shown in Table 4 (less the corresponding cost of the current program).

Army may need if minor recruiting problems develop in the 1980s. Finally, Option I has the advantage of being an existing program; its continuation would be legislatively and administratively simpler than creation of a new program.

Option I would not, however, provide the substantial increase in high-quality recruits that could be needed if the Congress increases military personnel strengths or major recruiting problems develop. Also, it would not eliminate the contributory feature of the current educational benefits program.

Option II. Implement a Noncontributory Program

Description. This option would provide a monthly benefit of $225 for each month of service, up to a maximum of 36 months. The maximum benefit would thus be the same as under Option I, but no contribution would be required by the servicemember. Also, this option assumes that only the Army offers a supplemental monthly benefit equivalent to the $12,000 kicker for high-quality recruits available under Option I.

The Value of the Program to the Individual. Under this noncontributory plan, a servicemember could earn a maximum $8,100 benefit or, if eligible for supplemental payments, a $20,100 benefit. The $2,700 increase in maximum benefits represents the contributory portion under Option I no longer required under this plan. Its perceived value by a recruit considering enlistment could range from $530 without supplemental payment to $5,030 with. The low discounted valuations assume that the recruit expects to use the benefits at rates comparable to those observed for the Vietnam-era GI Bill. The high discounted valuations assume that a recruit anticipates using all his earned benefits when a veteran (see Table 4).

Unfortunately, larger earned benefits also generate a greater incentive to separate. Table 4 shows that recruits approaching their first reenlistment effectively give up $1,170 worth of earned benefits by deciding to reenlist when no supplemental has been earned and give up $2,920 if they have earned a supplemental benefit. As in Option I, these discounted incentive values to separate diminish gradually the longer a servicemember remains on active duty.

Effects on Recruiting and Retention. By converting the discounted values at the point of enlistment (shown in Table 4)

into an overall enlistment response, CBO estimates that high-quality Army recruiting might improve as little as 3 percent or as much as 11 percent (Table 5). Once these individuals become vested in the benefit, higher rates of separation increase the recruiting requirement by 5 percent. When coupled with the lower estimate of recruiting improvement, this increase in requirements produces a net deficit of about 2 percent in overall high-quality recruiting performance when compared to what would occur if the fiscal year 1981 program (contributory VEAP with moderate kickers) was continued. If the higher recruiting estimate prevails, however, overall high-quality recruiting performance would improve by about 6 percent after taking into account the increase in separations.

Effects on Costs. CBO estimates the costs under Option II would reach a maximum of $720 million (in constant fiscal year 1983 dollars) by fiscal year 1996. Costs are low in the early years of the program, primarily because of the period of time required for servicemembers to vest in the program. Even though only Army high-quality servicemembers receive the supplemental payment, they account for about one-third of the option's cost.

As Table 7 shows, even under the higher recruiting performance estimate, the cost per additional high-quality Army enlistment amounts to $160,000. This very large estimate occurs because the program would produce costs (in steady-state) of over $340 million in veteran training benefits on behalf of all Army enlisted personnel in order to attract no more than 1,800 additional high-quality volunteers. The vast majority of Army recruits would have enlisted without the program, but after earning the benefits many would use them.

Pros and Cons for Option II. When compared to the first option, this noncontributory plan offers potential for a more significant improvement in recruiting. Adopting a noncontributory plan would also respond to critics who contend that the contributory requirement of VEAP fosters inequitable access to the program by discouraging participation among those least able financially, especially married servicemembers. This option would also help recruiting in all four services, rather than focusing only on Army high-quality recruits eligible for the supplemental benefit.

These advantages, however, come at a much higher cost and a greater recruiting risk. Because separations attributed to vesting in the benefit would be much higher under this program,

it could be counterproductive for high-quality recruiting, especially in the Army. The extremely high cost per additional Army high-quality enlistment ($160,000) shows how expensive a noncontributory plan available to all could be as a recruiting device, even with some targeting through supplemental payments.

Option III. Adopt a Two-Tier Noncontributory Program

Description. By doubling the earned benefit to $450 monthly upon completion of six years' service, this approach responds to the concern over the previous option's tendency to increase separations once servicemembers vest in the benefit. The option also contains supplemental payments for high-quality recruits equivalent to those available in the previous two options. It does not, however, double the supplemental payment upon completion of six years' service.

Value of the Program to the Individual. For those servicemembers completing six years' service, the maximum earned benefit amounts to $16,200 under the basic plan and $28,200 for those eligible for the $12,000 supplemental payment. Despite the doubling of the basic benefits (not the supplemental), the discounted values at the point of enlistment increase by only about 7 percent for those receiving a supplemental benefit and 17 percent for those receiving just the basic benefit, compared to Option II. The relatively small improvement in these values occurs because, in most cases, the larger benefit remains contingent upon completion of a term of service and reenlistment for a second term. Many enlistees may not plan on reenlistment. Furthermore, many of those who do reenlist can expect to complete a career in the military and hence will place a low valuation on post-service educational benefits, which will be useful to them only after retirement. 12/

The prospect of doubling the basic benefit after six years' service has only a modest effect during the period covering the initial reenlistments (Zone A) in reducing the incentive value to separate. The small size of this effect can be attributed to the

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12/ CBO estimates that while only 13 percent of all Army recruits can expect to reach retirement at 20 years' service, more than 40 percent of those who complete 6 years' service can expect to do so.

long time expected to elapse between the decision to reenlist and the use of any second-tier benefits. Reenlistment postpones use of the benefits for at least three years and, as noted above, many of those reenlisting will use the benefits only after retirement, if at all. Doubling the benefit also compounds the retention problem after six years' service. In subsequent career reenlistment zones, the larger earned benefit provides a stronger incentive to separate.

Effects on Recruiting and Retention. When compared to Option II, doubling the benefits upon completion of six years' service provides only a small additional improvement in high-quality recruiting. More importantly, for reasons just noted, this feature fails to reduce overall separations attributed to achieving eligibility for the benefit, at least in the Army. The resulting 5 percent increase in high-quality Army recruiting requirements is about the same as under Option II (see Table 5). Thus the net improvement in high-quality recruiting after accounting for the increased separations ranges between -2 percent and 7 percent, an overall result only slightly better than Option II.

Effects on Costs. Not only does the second-tier benefit feature provide little improvement in recruiting (at least for the Army) but it also raises costs substantially. CBO estimates the cost under this program would reach a maximum of $1.1 billion by fiscal year 1999. All of the $370 million increase in steady-state costs over Option II (see Table 6) can be attributed to the second-tier benefit feature of this option. Doubling basic benefits for completion of six years' service increases costs by over 50 percent, because of higher average costs per training veteran and the larger number of veterans induced to train because of higher benefits.

Pros and Cons for Option III. Doubling the basic benefits upon completion of six years' service would provide only a slight increase in high-quality recruiting (at least in the Army), and it would fail to achieve an overall reduction in the number of additional separations attributed to vesting in the benefit. The slight reduction in separations at Zone A would just suffice to offset the larger number of separations in later reenlistment zones after servicemembers passed the six-year point and became vested in the larger benefit. High-quality recruiting performance (after adjusting for separations) would be little better than under Option II, and this option would cost about 50 percent more. Taking all these factors into account, Table 7 shows a cost of $200,000 per additional Army high-quality volunteer compared to

$160,000 under Option II. The addition of a second tier would not prove cost-effective for the Army. Other services, however, may find the program somewhat more attractive--especially the Air Force and the Navy which offer a six-year enlistment.

Option IV. Install a Two-Tier Noncontributory Plan With Transfer of Earned Benefits to Dependents

Description. This option contains all the features of Option III, and as an additional retention device permits servicemembers to transfer their benefits. The spouse and college-age children of any servicemember with ten or more years' active duty could expend the earned benefit, provided the servicemember remained on active duty or had retired. The objective of this provision would be to neutralize the educational benefit's inherent incentive to separate.

Value of the Program to the Individual. The maximum amount a servicemember can earn under this program is the same as in Option III. But the transferability feature increases the discounted value at the point of enlistment by about 10 percent over Option III (see Table 4). More significant is the substantial effect this provision has on the incentive values to separate. The negative values in Zones A and B are in most cases substantially smaller than those for the other three options. Furthermore, for servicemembers with more than ten years' service (Zone C) there is a positive incentive to stay. Thus transferability produces slightly fewer separations than would occur under educational benefit levels in fiscal year 1981.

Effects on Recruiting and Retention. As Table 5 shows, the benefit transfer feature provides a modest improvement in high-quality recruiting; but more important, it offsets the increased number of separations attributable to vesting in this option's benefit. In fact, no more separations would eventually occur under this option than are occurring now. Taking separations into account, this option provides a net high-quality recruiting improvement of 4 percent under the low estimate and 14 percent under the high estimate. Thus, transferability more than doubles the maximum net improvement in high-quality recruiting as compared to Option III.

Effects on Costs. Transferability serves to counter the increase in high-quality separations attributed to vesting in the benefit, but it does so at considerable cost. Table 6 shows

that steady-state costs would increase by about $320 million, or about 30 percent more than under Option III. 13/ Despite this large increase in costs, Table 7 shows that, at $120,000 per high-quality volunteer, the program is significantly more cost-effective than Options II or III. None of these options, however, can compare with Option I (contributory VEAP with kickers), which has by far the lowest cost per additional high-quality volunteer.

OTHER METHODS TO REDUCE SEPARATIONS

Should the Congress put in place a noncontributory educational benefit available to all servicemembers, the recruiting performance and cost-effectiveness improvements under Option IV underscore the importance of addressing the incentive to separate. While a transferability feature could offset the increased losses caused by servicemembers vesting in the educational benefit, less expensive alternatives may be available.

Permit Cash-Out of Earned Benefits

Instead of transferability, the Congress could allow a vested servicemember who reenlists to forgo all his earned educational entitlement in return for a portion of its cash value. This "cash-out" might be a more cost-effective way of neutralizing the separation incentive of the educational benefit. If servicemembers were permitted to receive 25 percent of the face value of their earned educational benefit in cash, such a feature could more than offset the separation incentive offered by a two-tiered benefit.

13/ The actual steady-state cost of the benefit transfer provision shown parenthetically in Table 6 amounted to $473 million. The lower net cost difference between Options III and IV of $324 million can be attributed to the competition for funds among family members that reduces veteran use in favor of use by dependents. Also, this option generates fewer separations than Option III and thus reduces the number of veterans available to expend their earned benefits. To estimate these costs, CBO developed a projection model based on demographic surveys to analyze the likely cost and dependent utilization of transferred benefits. Documentation on this model will be available in a forthcoming technical report supporting CBO's modeling and research in this area.

The addition of transferability to the two-tiered benefit offered in Option III increased the steady-state Army enlisted cost by $108 million. A 25 percent cash-out provision would cost (also in steady-state) about $125 million annually in payments to Army reenlistees. This cost, however, would be largely offset by the estimated $110 million annual savings in unexpended educational benefits forgone by those electing to cash-out. Thus, the net cost of this provision would be less than $15 million, far below the $108 million transferability cost. 14/

Pay Additional Reenlistment Bonuses

Another way to prevent an increase in losses would be to increase reenlistment bonuses. This approach, however, might prove more expensive than the cash-out provision described above. If the Army offered an additional $5,000 cash bonus to all those choosing their first reenlistment (Zone A), enough additional reenlistments would be generated to offset the separations resulting from the earned educational benefits under Option III. Such a policy would cost an additional $150 million annually in Army reenlistment bonuses. It would also save about $30 million annually in unexpended educational benefits because, with lower turnover, there would be fewer veterans eligible to use the benefit. Thus, the net cost of such a policy would be about $120 million annually, which is higher than the net cost of a 25 percent cash-out ($15 million) and larger than the transferability provision included in Option IV ($108 million). While costs could be higher under this approach, reenlistment bonuses may offer more flexibility than other approaches in targeting the benefits so as to retain the most desirable career servicemembers. For example, the Army may find its concern about retention focused primarily on

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14/ The near-term costs of this cash-out provision will, however, be substantially higher than the steady-state estimate and also larger than near-term transferability costs. If, as these options assume, all servicemembers (not just new recruits) can earn the benefit and cash-out upon reenlistment, there will be a surge in costs between the fourth and tenth year after enactment of the bill. Rather than $125 million in cash-out payments, costs could reach a maximum $250 million during this transition to steady-state. These larger amounts would still be largely offset by eventual savings in unexpended educational benefits.

those former high-quality recruits who earned a supplemental benefit and only offer them the $5,000 reenlistment bonus. This much more selective policy would reduce by more than half the cost of the reenlistment bonus program designed above, making it a cheaper retention device than the transferability provision in Option IV.

ADOPTING AN ACCRUAL COST ACCOUNTING APPROACH FOR EDUCATIONAL BENEFITS

Because educational benefits represent a deferred benefit just as retirement benefits do, the full cost of any program would not appear in the budget until many years in the future under the current pay-as-you-go system of accounting. For instance, assuming implementation in fiscal year 1983, none of the educational benefit options described in this report would incur costs until fiscal year 1985, or approach maximum outlays until at least ten years later. This offers a temptation to disregard costs during the decisionmaking process.

An accrual budgeting approach, on the other hand, would establish a funding mechanism that explicitly recognized in the current budget the liability incurred for future expenditure on education benefits by today's military personnel. While no costs would occur in fiscal year 1983 on a pay-as-you-go basis, the charge to DoD under an accrual accounting system would approximate $120 million for Option I, ranging up to $1.0 billion for Option IV. 15/

15/ This fiscal year 1983 charge amounts to a lump-sum payment based upon the number of recruits enlisted and their eligibility for supplemental or kicker payments. For example, under Option II, the accrual charge per high-quality recruit eligible for the supplemental payment amounts to $6,100, and to $2,000 for those not eligible for the supplemental. A one percent real discount rate was employed to compute the accrual charge. These sums, however, do not include any unfunded liability resulting from initially permitting all servicemembers (not just new recruits) to vest in the program.

CHAPTER V. OTHER RELATED BUDGET ISSUES

This concluding chapter examines several issues not covered in the preceding chapter that have arisen during deliberations over new educational benefit proposals. It notes that if the services, especially the Army, need additional incentives as a hedge against the prospect of future recruiting difficulties, more cost-effective means than an educational benefit may be available. However, if the Congress decides to enact a noncontributory educational program, targeting the benefits on better-qualified recruits in short supply would improve the program's cost-effectiveness. Other issues discussed in this chapter include the use of educational benefits to improve reserve recruiting, and the effects of any new educational program on servicemembers who are already vested in other programs (VEAP and the Vietnam-era GI Bill).

COST-EFFECTIVENESS OF EDUCATIONAL BENEFIT PROPOSALS COMPARED WITH THAT OF OTHER RECRUITING INCENTIVES

Concern over the potentially high cost of any new educational benefit program has prompted some within the defense community to ask whether less expensive means to improve recruiting exist. This concern appears to be especially relevant in light of findings in Chapter I which suggest that any future recruiting difficulties are likely to be selective. Table 8 shows CBO's estimate of the additional cost per high-quality volunteer of the educational benefit options depicted in Chapter IV (Table 7), and compares them with several alternatives: an expansion of the Army's recruiter force; increased enlistment bonuses; and an increase in basic pay for all military personnel.

Expanding the Recruiter Force

Statistical studies on volunteer enlistments indicate that an expansion in the Army recruiter force would improve high-quality recruiting. Moreover, the data in Table 8 suggest this approach would prove more cost-effective than the other

TABLE 8. COST-EFFECTIVENESS OF THE EDUCATIONAL BENEFIT OPTIONS COMPARED TO THAT OF OTHER RECRUITING METHODS

Incentive Programs	Cost per Additional Army Male High School Graduate in Test Categories I-IIIA
Larger Army Recruiter Force	22,000
Increased Army Enlistment Bonus	35,000
Employ Educational Benefits a/	
Option I	45,000
Option II	160,000
Option III	200,000
Option IV	120,000
Increase in Basic Pay	200,000

a/ See Chapter IV for an explanation of how these cost-effectiveness measures were derived.

programs analyzed. 1/ The cost estimate of $22,000 per additional high-quality recruit was derived by dividing the estimated production of an additional recruiter into the cost of fielding that

1/ Several econometric studies have developed estimates of the relationship between changes in production recruiters and enlistment supply. For the Army, these recruiter elasticities generally range between 0.2 and 0.5. See Lawrence Goldberg, "Summary of the Navy Enlisted Supply Study," CNA memorandum 81-1158, Center for Naval Analyses (July 22, 1981); Daniel Huck and Jerry Allen, Sustaining Volunteer Enlistments in the Decade Ahead: the Effect of Declining Population and Unemployment, General Research Corporation (September 1977); and Richard L. Fernandez, Forecasting Enlisted Supply: Projections for 1979-1980, The Rand Corporation (September 1979).

recruiter. CBO estimates that it costs about $40,000 annually to field one recruiter (not including an accrual charge for retirement). 2/ CBO further estimates that adding one more Army recruiter to the force produces an additional 1.8 high-quality recruits annually. Dividing this marginal production rate into the annual cost of fielding a recruiter yields $22,000 per high-quality volunteer. 3/

While expanding the recruiter force appears to be a cost-effective way to hedge against the prospect of future recruiting difficulties, this conclusion is subject to certain qualifications. Expanding the recruiter force would be unlikely to result in a proportional increase in high-quality recruits. Statistical studies of enlistment supply which include a recruiter variable suggest that, for each percentage point increase in the number of Army recruiters, the supply of high-quality male enlistments would increase between 0.2 and 0.5 percent. 4/ Doubling the Army production recruiter force, now numbering about 5,200 personnel, might, for example, increase high-quality enlistments between 20 and 50 percent. Even this estimated range of increase may be somewhat optimistic. 5/

2/ The cost to field the recruiter does not, however, include additional costs associated with diverting career military personnel to the recruiting function.

3/ The 1.8 marginal product for recruiters was estimated as follows. Based upon the work by Goldberg cited in footnote 1, a 10 percent increase in Army production recruiters (520) was assumed to generate a 3 percent increase in male high school graduates with above-average test scores (945 recruits), or 1.8 high-quality recruits per recruiter.

4/ See footnote 1 in this chapter.

5/ In theory at least, the expansion of production recruiters should be subject to diminishing marginal returns. One should not expect the elasticity of supply with respect to recruiters to remain constant across a wide range of recruiter force sizes. Under this hypothesis, a doubling of the recruiter force would probably produce recruit supply increases below the 20 to 50 percent range.